

530,875

8-12-05

PATENT COOPERATION TREATY

PCT/FR2003/003866



PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

| | | |
|---|--|---|
| Applicant's or agent's file reference BIF023249/BQ | FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416) | |
| International application No. PCT/FR2003/003866 | International filing date (day/month/year) 22 décembre 2003 (22.12.2003) | Priority date (day/month/year) 23 décembre 2002 (23.12.2002) |
| International Patent Classification (IPC) or national classification and IPC G03F 7/00, B29C 59/02, B81C 1/00, G03F 7/09 | | |
| Applicant COMMISSARIAT A L'ENERGIE ATOMIQUE | | |

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

| | |
|---|---|
| Date of submission of the demand 24 juin 2004 (24.06.2004) | Date of completion of this report 08 April 2005 (08.04.2005) |
| Name and mailing address of the IPEA/EP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/003866

I. Basis of the report

1. This report has been drawn on the basis of (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments.*):

 the international application as originally filed. the description, pages 1-10, as originally filed,
pages _____, filed with the demand,
pages _____, filed with the letter of _____
pages _____, filed with the letter of _____ the claims, Nos. 1-9, as originally filed,
Nos. _____, as amended under Article 19,
Nos. _____, filed with the demand,
Nos. _____, filed with the letter of _____
Nos. _____, filed with the letter of _____ the drawings, sheets/fig 1/1, as originally filed,
sheets/fig _____, filed with the demand,
sheets/fig _____, filed with the letter of _____
sheets/fig _____, filed with the letter of _____

2. The amendments have resulted in the cancellation of:

 the description, pages _____
 the claims, Nos. _____
 the drawings, sheets/fig _____

3. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

4. Additional observations, if necessary:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

| |
|--|
| International application No. PCT/FR 03/03866 |
|--|

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | | |
|-------------------------------|--------|-----|-----|
| Novelty (N) | Claims | 1-9 | YES |
| | Claims | | NO |
| Inventive step (IS) | Claims | 1-9 | YES |
| | Claims | | NO |
| Industrial applicability (IA) | Claims | 1-9 | YES |
| | Claims | | NO |

2. Citations and explanations

1. Reference is made to the following documents:

D1: WO 01/79933 A (HEIDARI BABAK; OBDUCAT AKTIEBOLAG (SE)) 25 October 2001 (2001-10-25)

D2: LEBIB A ET AL: "Tri-layer systems for nanoimprint lithography with an improved process latitude" MICROELECTRONIC ENGINEERING, ELSEVIER PUBLISHERS B.V., AMSTERDAM, NL, vol. 53, no. 1-4, June 2000 (2000-06), pages 175-178, XP004237747 ISSN: 0167-9317

D3: US 2002/170880 A1 (CHEN YONG) 21 November 2002 (2002-11-21)

D4: US-A-5 772 905 (CHOU STEPHEN Y) 30 June 1998 (1998-06-30)

2. Documents D1 to D4 describe imprint lithography methods including all of the steps mentioned in the preamble of claim 1. Documents D1 and D2 also describe the presence of a lower sub-layer and an outer sub-layer, and the imprint step merely involves the mould projections penetrating the outer

sub-layer until they contact the lower sub-layer. No hardening of the lower layer is mentioned in D1 or D2. It follows that claim 1 is novel.

The applicant has emphasised that neither of documents D1 and D2 describes the use of the hardness of the lower layer to provide a barrier layer during mould imprinting. Furthermore, the remainder of the upper layer as per D1 and D2 must be removed before it can be used as a mask, since the thickness of the upper layer is greater than the depth of the mould.

For this reason, it appears that the additional step of hardening the lower layer leads to an effect that could not be foreseen on the basis of a combination of documents D1 to D4. It follows that the present application complies with the requirements of PCT Article 33(1) since the subject matter of claim 1 involves an inventive step as defined in PCT Article 33(3).

3. Dependent claims 2 to 9 are thus also novel and inventive.